

TREATMENT OF IDIOPATHIC HYDROCELE

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The tunica vaginalis is the smallest of the serous cavities derived from the coelom, and resembles the pleura, pericardium and peritoneum in the histological character of its lining and in that its layers are separated by a potential space containing a small quantity of clear serous fluid, varying normally between 0.5 and 2.0 c.c. An increase in the amount of this fluid is clinically known as a hydrocele.

The treatment of hydrocele dates back to the days of the Roman Empire, when Celsus attempted cure by injection of saltpetre. The great number of possible treatments described in the literature emphasizes the fact that there is no ideal cure. The various claims and counterclaims which in some instances contradict each other, tend to cloud and confuse the issue further. The three available methods of treatment are (a) tapping (b) aspiration and injection, and (c) operation.

Tapping is merely palliative except in infants, when a cure is effected.¹ Burkitt² reports a recurrence after tapping in 28 out of 30 young men and in 18 out of 20 old men.

INJECTION THERAPY

The mechanism of injected sclerosant fluid is obliteration of the tunica by a process of aseptic chemical inflammation resulting in fibrosis.

One of the earliest accounts of injection therapy is that of Samuel Sharp, surgeon to Guy's Hospital, who injected hydroceles with spirits of wine in 1733.³ This method of cure, though from all accounts effective, was exceedingly painful and was almost as formidable as the radical cures by incision, the tent or the seton, which were performed surgically at the time. Sir James Earle, senior surgeon to St. Bartholomew's Hospital in 1790, used to inject hydroceles with 'port wine, one-third part, and a decoction of red rose leaves, two-thirds parts' after withdrawing the hydrocele fluid. In 61 cases published, fairly good results were obtained.⁴

Maingot,⁵ employing injections of quinine-urethane and tetracaine in 17 cases, had a recurrence in 3 instances. Livermore⁶ aspirated the fluid via a large trocar and after this evacuation of the fluid a narrow shoe-string tape saturated with sodium morrhuate solution was packed in loosely and $\frac{1}{2}$ inch was removed on subsequent days. No results of follow-up were given.

Ewell *et al.*⁷ injecting quinine and urethane, report a recurrence rate of 4.3% in a series of 165 cases. On an average, 3 injections at weekly intervals were required. One patient received 17 injections. It is disturbing to read that one patient was operated on a month after 'cure' by these injections, suggesting a rather premature assessment. James⁸ using the same material claims success in 74 cases. Mayers⁹ cites one failure in 25 instances, the average follow-up period being 17.3 months. Robertson¹⁰ using sodium morrhuate, obtained a cure in 7 patients with large hydroceles.

Diamond¹¹ claims the cure of 76 cases with a single twin injection of lithocaine and quinine-urethane. He admits no failures but does not mention the length of observation.

Foote¹² describes 95% success with quinine and urethane. Wilson¹³ in a series of 15 cases found a recurrence in 1 patient.

Unlike many previous authors he states the length of the follow-up period. It was between 8 and 20 months—perhaps a rather short time for very accurate assessment.

Rhind¹⁴ initially used 'ethamolin', but as this resulted in severe pain followed by collapse, abandoned its use in favour of quinine-urethane. Reviewing 128 cases out of 145 treated, 82 were regarded as satisfactory, 26 as improved and 20 as failures. It is edifying to note that he defined these categories accurately, but no time of follow-up is given.

A history-summary by Baretz¹⁵ mentions other preparations used in the past, which include iodine, phenol, iodine and phenol, Morestin's fluid (equal parts phenol, glycerine and alcohol), Mellenah's vaccine, equal parts of 40% alcohol and water, alcohol and phenol, milk, and 25% sodium-chloride solution.

Bruns,¹⁶ in the largest number of published series collected, cites a recurrence rate of 6.1% in 1,593 cases.

There are definite *contra-indications* to injection therapy, including: (1) Organic disease of testicles, (2) acute hydrocele associated with trauma or epididymo-orchitis, (3) the congenital variety of hydrocele, (4) infants, and (5) the presence of inguinal hernia.

Many untoward effects following the use of sclerosing agents have been recorded. Severe pain, unfavourable reactions and sloughing characterized the use of the earlier agents.

Levi¹⁷ stresses the fact that hydroceles in infancy have very thin walls, and the vas deferens is very closely applied to the outside of the hydrocele. If an irritant is injected to produce a mild aseptic inflammation it is not unreasonable to assume that the inflammation might spread to the closely adjacent vas deferens and produce stenosis or stricture. Therefore he urges that bilateral hydroceles in infants should never be injected.

Riba¹⁸ describes a case of scrotal gangrene following aspiration and injection. Solley¹⁹ describes a case where the use of phenol was followed by sloughing of the scrotum and testicle, terminating fatally from irreversible renal damage. McCastor²⁰ reports 2 cases of reaction to sodium morrhuate, both patients collapsing, with cyanosis and cessation of respiration in one and severe abdominal pain in the other. Both patients recovered. O'Malley²¹ describes how Edward Gibbon died after aspiration of an exceedingly capacious hydrocele associated with an inguinal hernia. It seems that the hernia was aspirated as well. Rhind¹⁴ quotes the occurrence of severe pain in 9 instances and haemorrhage in 5 cases, one of which became infected and another required an emergency operation.

Young²² describes the presence of dense adhesions formed between the tunica vaginalis and the tunica albuginea, covering the epididymis and testicle, occasionally leading to painful contractures. On other occasions small lobulated accumulations of fluid recurred between the epididymis and testicle and tunica vaginalis, resulting in areas of marked tenderness and sometimes considerable pain. In some cases fine string-like adhesions were present between the epididymis and testicle which, as the fluid recurred, produced painful points of tension between the testicle and epididymis.

The possible sources of *recurrence* after aspiration and injections are: (1) Incomplete evacuation, the hydrocele fluid diluting the irritant, or the protein combining with the irritant so that the endothelial lining is not sufficiently irritated or chemically inflamed; (2) a loculus remaining untapped; (3) insufficient quantity of sclerosing fluid used; or (4) sclerosing fluid too irritant.

OPERATIVE THERAPY

"Haematomata are the curse of hydrocele surgery." This apt remark by Burkitt highlights one of the main problems related to open operation.

Jaboulay,²³ in his operation as originally described, released the testicle by ligating and dividing the gubernaculum testis, and then folded the two sides of the divided sac behind the testicle and fixed them there with a few sutures, one of which included the superficial tissues of the cord. This is described in American literature as the Wyllys Andrews or Bottle operation.

Campbell,²⁴ reviewing 502 cases treated by excision of redundant sac, reports on the following complications: (a) Infection (76 cases), (b) haematocele (18 cases), (c) scrotal oedema (4 cases), (d) infected haematoma (12 cases, of which 8 required orchidectomy). The recurrence rate was 6%, though only 33 cases were followed up, and no length of follow-up was given. In the same paper Bruns is quoted as having found a 2.4% recurrence rate in a collected series of 1,216 cases.

Moore,²⁵ using a principle similar to the old clamp and cautery operation for piles, claims good results in 170 cases, and makes the rather emphatic statement that by using his technique recurrence is impossible. He also describes 2 cases which had had a Jaboulay's operation performed, on whom he re-operated and found that the ligature had slipped, with undoing of the eversion resulting in complete reconstruction of the sac and reaccumulation of fluid.

Wolf²⁶ did not detach the gubernaculum and only dissected the anterior half or two-thirds of the sac, with partial excision of the tunica. There were no recurrences in 19 cases. No length of follow-up was given.

Young²⁷ states that simple eversion of the sac is more frequently associated with recurrence than radical excision, but no evidence is given to substantiate this. In order to obviate damage to vessels of the sac, he describes a procedure whereby 7 separate coverings are incised, each being stripped back, carrying with them most of the blood vessels of the sac. When the 8th and final layer is reached, there are practically no vessels to ligate, and this layer is excised. A gauze wick is inserted. No follow-up was reported. This procedure is rather complicated and laborious.

Croot²⁸ suggests eversion and approximation of the sac without paying undue attention to slight oozing of blood. This is dealt with by inserting a drain and anchoring the scrotum to the abdominal wall by sutures.

Burkitt² excises the sac and in order to prevent haematomata encases the scrotum in plaster-of-Paris. This he stresses as the most important aspect of his technique, and mentions the presence in some instances of pressure sores at the edge of the plaster-of-Paris dressing as being evidence of prevention of haematomata. He followed up 98 cases for an average period of 1-8 months and the cure rate was 99.5%. This is rather a traumatic procedure, tending to ignore the mechanism of haematoma formation and, though practical in Uganda, might not have universal application. Burkitt also stresses the fact that there is no need for drainage, because haematomata are the result of a gradual ooze between the layers of loose scrotal tissue. They cannot therefore be aspirated and a drainage tube adds to the chance of sepsis without lessening the risk of haematoma. Jerome²⁹ advises the use of an elaborate encasing elastic dressing.

Solomon,³⁰ in order to minimize the amount of dissection, does not excise any part of the sac and merely sutures the cut edge to the point of junction between testis and epididymis. In 42 cases he quotes good results, though no exact figures are given, nor is the length of follow-up given.

Özilek³⁰ describes a "window or fenestration method" which entails opening the sac and folding the cut edges on themselves and suturing them in this position so as to make a permanent window 3 cm. in diameter in the sac. This is to enable the secreted fluid from within the tunica vaginalis to pass to the outer layers and be absorbed. This operation is based on the premise that there is a deficiency in absorption from the lymphatics of the tunica. It is discussed below in more detail.

DISCUSSION

Review of the literature is thus rather confusing and the great number of different procedures reflects the fact that there is as yet no one ideal cure. In order to obtain a more

rational approach, the mechanism of fluid accumulation will now be studied.

The tunica vaginalis is of the same histological structure as the peritoneum and has the same morphology. It consists of a single layer of flattened epithelium resting upon fine connective tissue, in which run lymphatic channels. The lymphatics of testicle, epididymis and tunica vaginalis pass within the spermatic cord and enter the pre-aortic lymph nodes, retaining their initial intra-abdominal connection. The lymphatics of the outer coverings of the testicle drain to the inguinal glands. In normal man, by means of India ink studies, Rinker and Allen³¹ have demonstrated the presence of well defined lymphatic channels in the parietal layer of the tunica vaginalis.

Only man and anthropoid apes possess a tunica vaginalis which does not communicate with the peritoneal cavity. Hence experimental work on hydrocele with the common laboratory animals is impossible.

Huggins and Entz³² pointed out that there is a constant interchange of fluid within all serous-lined cavities, and any accumulation of fluid must be due to an imbalance between secretion or absorption in this interchange. They showed by estimations of quantitative absorption of phenolsulphonphthalein that the absorption from the tunica vaginalis was slower than from any of the other serous-lined cavities, and that in patients with hydrocele the absorption was far less than in patients without hydrocele. Confirming these results, Özilek³³ studied the time of output from the kidney of indigo carmine injected into the vaginal sac with and without hydrocele, and concludes that in the chronic idiopathic form of hydrocele there is an impairment of reabsorption, which is therefore incapable of keeping pace with normal secretion. Rinker and Allen³¹ substantiate the inadequacy of absorption as the basic mechanism of fluid accumulation in the tunica both in congenital and idiopathic hydrocele, but point out a difference between the predisposing cause in the two conditions, as follows:

Congenital hydrocele occurs when the lymphatics of the tunica vaginalis are not sufficiently developed to remove the fluid after the closing of the communication between the processus vaginalis and the peritoneal cavity. The timing of the closure of the patent processus vaginalis with the development of the lymphatics in this structure may be the deciding factor determining whether a congenital hydrocele will be present. The descent of the testicle, development of the lymphatics to a functioning state in the processus vaginalis, and closing of the communication with the peritoneal cavity, are late processes both phylogenetically and ontogenetically. Hydroceles which are present at birth may in some cases disappear spontaneously in the first year of life. This suggests that the lymphatics were not adequately developed at birth and complete their development afterwards. Expectant treatment is therefore rational, and this also explains the curative effect of tapping in infants.

In *chronic or idiopathic hydrocele* permanent damage to the lymphatics appears to have taken place. Whether the acquired hydrocele is transitory (acute) or permanent would depend on the degree of irreversible damage to the lymphatics in the tunica vaginalis. Cure of the hydrocele is effected by surgery or sclerosing solutions because the secreting membrane is removed or rendered incapable of this function.

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Two other described anatomical facts are worthy of mention:

Ratliff²³ points out that as the margin between the parietal and visceral layers are approached a heavy network of blood vessels can be noted. These are obviously endangered in dissection, and the haemorrhage will necessitate multiple ligations with resulting oedema.

Burkitt noted an appreciable gap between testis and epididymis in 72% of a series of 200 cases operated on. In many instances it was noticed that a vascular fibrous bundle crossed the sac at a considerable distance from the testis. This was often divided along with smaller vessels when the sac was excised. The fact that the band always connected the two poles of the epididymis suggested that it might consist of epididymal tissue out of normal position, and this suggestion was histologically confirmed. This finding was noted in 7 of my cases. This is perhaps another factor militating against excision of the sac.

The fundamental object in the treatment of hydroceles is: (a) to remove fluid and (b) to prevent recurrence. Any operation should satisfy the following criteria:

(i) Efficacy—in results it should be equal to any other method, if not better.

(ii) Simplicity—the less complicated procedures are obviously more adaptable to general use. Conversely, difficult operations which give good results only in the hands of the few are not surgically sound.

(iii) Safety—freedom from complications.

An operation will now be described which, it is felt, tends to fulfil the above criteria. The essence of this procedure is minimal amount of dissection, eversion of the sac, and painting of the endothelial lining with a sclerosant agent.

OPERATION

The operator, standing on the right side, grasps the neck of the scrotum with his left hand and the hydrocele is thus put on the stretch (Fig. 1). There are vessels in the scrotal skin which run parallel to one another in an oblique manner. These are made prominent by putting the sac under tension, and the incision is made in the avascular area between two such vessels (Fig. 2). In the line of the skin incision, the external spermatic fascia and cremasteric fascia are incised. The internal spermatic fascia has an entirely different appearance from that of the outer two layers. It is non-elastic and usually considerably thickened, and is tensely stretched over the hydrocele sac. There is a natural plane of cleavage superficial to this layer of internal spermatic fascia.

As the sac is not excised in this operation, it being only averted, a recess for the everted sac and testicle has to be made in order to allow for its replacement. This is a very important step in the operation. The finger is insinuated in the plane of cleavage (Fig. 3), and a recess is thus created.

The fluid is then drained by inserting a trocar and canula between two haemostats. The fluid should be allowed to escape slowly so as to prevent a too sudden release of pressure and possible rupture of fine capillaries.

The sac wall is then opened, cutting diathermy being used. It is only necessary to have an incision long enough for the testicle to be protruded or herniated and the lower part of the sac everted (Fig. 4). This limits the amount of vascular tissue that has to be divided and does not require dissection up towards the external ring, to which the hydrocele sac often extends. Moreover, the chances of the eversion undoing itself spontaneously are decreased if the incision in the sac is limited to the size of the testicle.

The testicle and epididymis are now inspected for any pathological condition. Any loculi, which are often present after tapping, can be opened separately and the fluid evacuated.

In order to prevent further secretion of fluid the endothelial lining is destroyed by painting it with a sclerosing agent (Fig. 5). Under direct vision every part of the sac can be so treated, including any loculi that were present (Fig. 6), and, as direct contact

of sclerosing agent with endothelial lining is ensured, there is no danger of using too little or excessive amounts. Two agents have been used, viz. (1) 2-5% tincture of iodine, and (2) a solution containing 13.3% quinine hydrochloride and 6.7% urethane. The latter mixture was described as the ideal sclerosing fluid by Kilbourne and Murray²⁴ in their excellent study on this subject.

A careful search is made for any bleeding, which is dealt with by diathermy or fine catgut. No attempt is made to suture the everted sac. The testicle and sac are then replaced in the recess previously made (Figs. 7a and 7b), and a continuous plain or interrupted catgut suture inserted, embracing skin and cremasteric and external fascia (Fig. 8). There is thus a minimal amount of suture material buried. Fig. 9a shows the appearances before operation, Fig. 9b after operation, and Fig. 10 after 4 weeks. No drainage is inserted. The wound is sprayed with norbucutane or tinct. benz. co., and a simple suspensory bandage of cotton wool is applied.

ANALYSIS AND FOLLOW UP

Table I shows certain particulars of the cases treated by this method.

TABLE I. CASES OPERATED ON

Case	Age	Side	Duration (Years)	Previous Tapping	Remarks
1	59	Bilateral	4	1	Associated right hernia.
2	58	Left	3	1	
3	60	Right	5	1	
4	24	Right	7	1	
5	54	Left	12	—	
6	53	Left	30	1	Very large hydrocele.
7	18	Right	18	2	
8	60	Bilateral	12	1 (R)	Associated bilateral hernia.
9	57	Right	9/12	—	
10	3	Left	3	—	Encysted hydrocele of cord.
11	72	Bilateral	30	4 (R) 1 (L)	Associated bilateral hernia.
12	44	Right	15	6	
13	61	Left	13	1	
14	53	Right	18/12	3	
15	56	Left	2	—	
16	81	Left	43	2	

The ages varied from 3 years to 81 years with an average of 50.8 years. Seven cases occurred on the left side and 6 on the right, with 3 cases of bilateral hydrocele. All except 4 patients had been aspirated at least once before.

The main presenting symptom was that of a swelling. Slight discomfort occurred in half the cases and embarrassment in 2. One patient presented himself because he experienced difficulty in micturating as he could only locate his penis with difficulty; his hydrocele was so large that it reached down to his knees (case 6).

Another patient presented with a very hard mass, suddenly increasing in size after aspiration 6 weeks previously. Although this was thought to be a haematocoele following aspiration, a neoplasm could not be excluded and orchidectomy was performed. Examination and microscopy showed that it was a haematocoele (case 1).

A little boy was admitted with a diagnosis of irreducible inguinal hernia. On examination this proved to be an encysted hydrocele of the cord (case 10). This was the only case where an inguinal incision was used. On exposure of the sac, the spermatic cord was found to be spiraling around the thin-walled sac. Complete excision of the sac would almost certainly have endangered the contents of the cord. Eversion



Figs. 1-10

of the sac and painting of the endothelial surface proved very safe and efficient and is probably the method of choice in all cases of encysted hydroceles of the cord.

At operation 3 cases were found to be multilocular; these had all been previously aspirated. In one case the sac was bilocular; there was no previous history of aspirations. In 5 instances there was an extension of the sac up to the external ring; in most of the cases there was some degree of upward extension.

In one patient eversion of the sac proved impossible because the wall was thick and partly calcified (case 6). In another it was extremely difficult to evert (case 4) and here

too the wall was thick. When a thick wall is present it is far better not to attempt eversion, but to excise the sac. This is perhaps the only contra-indication to eversion and painting of the endothelial lining. In case 6 orchidectomy would have perhaps been the ideal.

The post-operative findings are detailed in Table II.

The length of follow-up varies from 2 months to 4 years (average 14 months).

One patient developed a very marked oedema of the scrotum and a very severe infection and discharge (case 6). This was the man who had a hydrocele the size of a football. At one stage during the post-operative period orchidectomy

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TABLE II. POST-OPERATIVE COURSE

Case	Length of Follow-up	Oedema	Discharge	Sepsis	Discomfort and Pain	Haematoma	Recurrence
1	4 yrs.	29 days	—	—	slight	—	—
2	4 yrs.	25 days	—	—	—	—	—
3	14 mths.	3 days	—	—	—	—	—
4	14 mths.	18 days	slight	—	—	—	—
5	14 mths.	8 days	slight	—	—	—	—
6	14 mths.	24 mths.	v. marked	v. marked	marked	present	—
7	12 mths.	18 days	—	—	—	—	—
8	11 mths.	21 days	—	—	—	—	—
9	11 mths.	22 days	slight	—	—	—	—
10	8 mths.	5 days	—	—	—	—	—
11	6 mths.	15 days	—	—	—	—	—
12	5 mths.	20 days	—	—	—	—	—
13	5 mths.	18 days	—	—	—	—	—
14	5 mths.	2 mths.	—	—	moderate	—	—
15	3 mths.	3 days	—	—	—	—	—
16	2 mths.	18 days	—	—	—	—	—

was considered, but the infection subsided and after 2 months in hospital he was discharged. At the last examination the size of his scrotum was only $2\frac{1}{2} \times 2 \times 1$ inches. This was a satisfactory end result, but the long stay in hospital and post-operative infection did not, in retrospect, warrant the procedure in this case. Excision of the sac or perhaps orchidectomy would have been better alternatives.

The other instance of a marked oedematous reaction was case 14, and here it was thought that there was an element of iodine sensitivity as well as the thick-walled sac. In all subsequent cases a pre-operative intradermal sensitivity test was performed.

Oedema of the scrotum and subcutaneous tissues was a constant post-operative finding. This varied in its duration from 3 days to $2\frac{1}{2}$ months (average 22 days). If cases 6 and 14 are excluded, the average duration of oedema is 16 days. This oedema does not incapacitate the patient, and represents the reaction to the chemical sclerosant used.

The 2.5% tincture of iodine was used in 11 cases. In order to ascertain whether there might be less oedema the solution containing 13.3% quinine hydrochloride and 6.7% urethane was used in 5 cases. It is too early to assess fully whether the latter mixture was followed by less reaction than the iodine, but the impression gained is that this is the case.

Of the 16 cases haematoma has resulted in only one (case 6). In 3 cases there was a slight discharge and in one case a very marked discharge (case 6). Pain and discomfort were also very severe in case 6. So far no recurrences have been noted.

Owing to the fact that the sac is not excised, in all cases the bulk of the affected testicle was greater than that of the normal side. This was not commented on by any of the patients and did not occasion any discomfort or pain.

Though the series presented is small and the follow-up

period not very long, it is felt that this simple procedure offers results which are better than or certainly comparable with those obtained by other methods.

SUMMARY

1. Methods of treatment of hydrocele by aspiration and injection of sclerosing agents, as well as by surgery, are reviewed.

2. The probable mechanisms of fluid accumulation is discussed. It is generally agreed that the fault is a defect in absorption.

3. A new procedure which entails a minimum amount of dissection, viz. eversion of the hydrocele sac and painting of the endothelial lining with a sclerosant agent, is described. The method is simple and appears to have a low morbidity and a negligible recurrence rate.

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VAN DIE REDAKSIE : EDITORIAL

RUS IN DIE BED

Rus in die bed is een van die oudste vorms van terapie. Ongelukkig loop ons vandaag gevaar om uit die oog te verloor dat dit 'n middel is wat met net soveel kliniese oorleg voor- geskryf behoort te word as middels soos digitalis, morfien en antibiotika. Die gevare van rus in die bed word nie altyd ten volle deur ons besef nie, en veral die publiek is geneig om die geneesheer met 'n mate van kritiese skeptisisme te bejēn omdat hy die pasiënt 'te vroeg laat opstaan'. Dikwels word enige komplikasie, of vermeende komplikasie, ten onrechte deur die familie toegeskryf aan die beleid van die geneesheer om sy pasiënt vroeg te laat opstaan. Weliswaar vereis sekere toestande langer rus in die bed as ander, maar die meeste klinici is vandaag die mening toegedaan dat dit wenslik is om die pasiënt so vroeg as moontlik uit die vere te lig.

Onder die gevare van rus in die bed is dié van flebotrombose en pulmonale embolisme seker die belangrikste.¹ Pasiënte met hartversaking, pynlike gewrigstoestande en verlamming van die ledemate is waarskynlik die mees kwesbare groep.

Die bomenlike toertjies wat veral gesette pasiënte soms moet uitvoer om hul om te draai in die bed, op 'n bedpan te probeer balanseer, of om flatus of urine te probeer passeer, lei dikwels tot 'n onbewuste uitvoering van die Valsalvamaneuver.^{2, 3} Verlengde rus in die bed lei verder tot verminderde ventilasie van die longe en stase van sekseries wat atelektase en hipostatiese pneumonie bevorder.⁴

Die voorkoms van osteoporose, onbruksatrofie van spiere en verhoogde kalsium-uitskeiding met nierstene by persone wat lank in die bed moet bly, is oorbekend. Die gevare van beddere, gastro-intestinale klaktes soos winderigheid, hardlywigheid, rugpyn, en die emosionele trauma wat volg op langdurige immobilisasie, word feitlik as vanselfsprekend aanvaar en opgelet, maar word gewoonlik simptomaties behandel met purgeermiddels vir hardlywigheid, aspirin vir rugpyn, ens.

Ons wil nie hiermee die gebruik van rus in die bed as uit die boso bestempel nie, maar ons wil die aandag vestig op die opmerking van Dock:² 'Pasiënte moet nooit in die bed gehou word bloot omdat dit gemaklik is om hulle daar te hê, en geen ander terapie op die oomblik die moeite wert is nie'.

Dit is dus interessant om op te merk hoe dat vroeë ambulansie geleidelik deur gekontroleerde studies vir die behandeling van verskillende toestande bepleit word in die hedendaagse literatuur. Levine en Lown⁵ stel in 1952 voor dat rus in die bed nie die beste manier van behandeling vir miokardiale infarksies mag wees nie, en onlangs het Helander⁶ sy pasiënte in drie groepe verdeel: (1) Gevalle in die stoel

behandel met antistolmiddels, (2) gevalle in die stoel behandel sonder antistolmiddels, en (3) gevalle met antistolmiddels behandel en strenge toepassing van rus in die bed. Die ernstigste gevalle was in groep (1) en die ligste gevalle (met alleen elektrokardiografiese bewys dat dit nie angina pectoris was nie) was in groep (3) vervat. Die sterfsterfer in groep (1) en (2) was 23% en 20% respektiewelik, en 44% in groep (3). Hoewel hierdie sterfsterfers versigtig geïnterpreteer moet word,⁷ dui hulle tog daarop dat ons nie bloot volgens gewoonte 'n bepaalde tydperk van rus in die bed moet aanbevele nie.

Skok, ernstige anemie, bloeding, en akute infeksies bly oor die algemeen egter tog nog absolute indikasies vir behandeling in die bed.

Chalmers *et al.*⁸ het, wat infektiewe hepatitis onder troepe in Korea betref, 'n baie vryer houding ingeneem en pasiënte is toegelaat om op te staan as hulle gesond voel, mits hulle 'n uur rus na elke ete. Terugvalle was nie groter met hierdie metode as met die meer konserwatiwe metode nie. Sherlock⁹ voel egter dat dit in hierdie gevalle veiliger is om die pasiënt liewers te lank as te kort in die bed te hou, maar beklemtoon ook dat in liger aanvalle onder kinders een week rus in die bed met twee weke herstel daarna voldoende mag wees.

Vroeë ambulansie van pasiënte bevorder hul moral en fiksheid, katerterisasie en purgasie word beperk tot 'n minimum en hospitaalkoste word verminder. Vroeë ambulansie sorg ook vir 'n groter omset van pasiënte in ons reeds oorlaaide hospitaalbeddens en verminder die administratiewe koste verbonde aan langdurige hospitalisasie.

Sommige van die nuwer waarnemings oor korttermyn behandeling in die bed (vir verskillende toestande) moet egter krities beoordeel word en nie sommer as die beste behandlingsmetode aanvaar word nie. Die nuwe benadering beklemtoon net dat rus in die bed, soos enige ander prosedure in die geneeskunde, sy aanwysings, teenaanwysings, gevare en komplikasies het. Rus in die bed moet *voorgeskryf* word, en die dosis *gewysig* word, na gelang van die kliniese verloop van die pasiënt se toestand.

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SLIDING SCALE OF SUBSCRIPTIONS

Some time ago the Federal Council of the Medical Association of South Africa appointed a special Committee to investigate the desirability and practicability of introducing

a sliding scale of subscriptions for particular members within the Association. Federal Council decided to take this step to ensure that all Groups within the Association should have

an equal share of responsibility regarding their relative financial obligations to the Association. After careful deliberation and consideration of all the factors at their disposal this Committee presented its recommendations to the Council at its recent meeting in Johannesburg. Federal Council then decided:

1. That the rate of subscriptions for interns be fixed at £2 2s. a year.
2. That the rate of subscriptions for practitioners in the first two years of post-intern practice (hospital or private) be fixed at £2 2s. a year.
3. That the rate of subscriptions for retired doctors over the age of 65 be fixed at £2 2s. a year.
4. In cases where both husband and wife are members of the Association, only one of them will pay the full fee of £4 4s. a year; the other one will pay £2 2s. a year.
5. Subscription rates for all other members of the Medical Association will be £4 4s. a year, irrespective of whether they are engaged in general practice or employed in a full-time capacity.

The decision of Federal Council regarding the subscription rates for full-time medical officers calls for closer scrutiny. Under the conditions which obtained in the past, full-time medical officers probably had a legitimate claim to preferential treatment regarding subscription rates for members, since

it was felt that the average income of full-time personnel was less than that of private practitioners.

The recent rise in salaries has, however, changed this position. The rate of remuneration of full-time medical personnel in the various government and municipal services, and on the staffs of universities, compares favourably with the average net income of private practitioners as a group. Moreover, the services rendered by full-time medical officers cannot be regarded as isolated services. The whole structure of medical services must be seen as an indivisible whole. Hospital and other health services can only function effectively against the background of private practice. May we, therefore, make a special plea for closer cooperation within the Association of full-time medical officers and private practitioners. Only by meeting our obligations jointly as a unified body will we succeed in building up a strong and lasting organization.

The hospital practitioner needs the support of the general practitioner and the practising specialist. The private practitioner, on the other hand, can only keep abreast of all recent developments in medicine by keeping in close touch with his colleague in the hospital. It will be a great advantage to us all if Branches and Divisions could devise ways and means of drawing more and more colleagues from all spheres of full-time occupation into full participation in the activities of the Medical Association.

THE CARPAL TUNNEL SYNDROME

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In recent years the carpal-tunnel syndrome has been established as a definite clinical entity. In 1947 Brain *et al.*¹ described 6 cases and in 1953 Kremer *et al.*² reported 40 cases. These outstanding papers clarified the clinical picture and described the surgical treatment required to obtain relief from the distressing symptoms.

In this paper a further 13 patients in whom 19 median nerves were involved are described. These include 2 Cape Coloured females and 1 European male. Of the 19 median nerves 16 were decompressed by operation.

DESCRIPTION

Sex. The syndrome occurs predominantly amongst women. In this series, 12 of the 13 patients were women. Kremer *et al.*² report 5 times as many women as men affected, and all 6 patients in the paper by Brain *et al.*¹ were women.

Age. It is middle-aged persons who are most commonly affected. The ages in this series of 13 patients range from 42 years to 65 years with 8 patients in the 5th decade, and 4 in the 4th.

Symptomatology

Characteristically there are paraesthesiae, numbness and pain or ache in the median-nerve distribution in the hand. However, the most important clinical feature is the paroxysmal nocturnal nature of the attack. All the patients, except one (case 4), stated quite unequivocally that their symptoms were far worse at night, the vast majority having lost not less than 2 hours of sleep every night. The symptoms were usually aggravated by manual work performed during the day. All the patients tried to relieve the symptoms by

shaking or rubbing, or hanging their hands over the edge of the bed, but in most instances little or no relief was obtained by these manoeuvres. Of the 13 patients, 7 experienced a feeling of 'swelling' or 'bursting' in the affected fingers at night, but no actual swelling was ever detected by them.

Despite the fact that it is the area of distribution of the median nerve that is usually involved, all the fingers were affected in 6 patients. It is probable that this additional involvement of the area of distribution of the ulnar nerve may be explained by the observation that occasionally branches of the ulnar nerve carrying sensory or motor fibres, and given off high in the forearm, join the median nerve. This has been confirmed at operations for severed ulnar and median nerves which present with apparently anomalous clinical pictures.

This condition has also been noticed to occur during pregnancy. In this series case 3 presented when she was 7 months pregnant. The severity of her symptoms necessitated an operation and the changes found at the operation were the same as those observed in other patients on whom the operation was performed.

Signs

(a) *Sensory* signs may take the form of hypo- or hyperesthesia in one or more of the affected digits, but rarely in all. Generally, the sensory signs, when present, are discouragingly vague. In 9 patients sensory changes were found.

(b) There were only 4 patients with signs of *motor* disturbance. In 3 there was slight wasting of the abductor

TABLE I. DETAILS OF CASES

No.	Name, Age (yrs.) and Race	Duration	Handedness	Unilateral or Bilateral	Paras- thesiae	Numbness	Pain or Ache	Sensory Changes	Motor Changes	Flexion Test	Tinel's Test	Operation	Result
1	Miss E.W. 55. Eur.	5½ yrs.	Right	Left	+	+	+	0	Slight wasting of APB	Not recorded	Negative	Yes	Excellent
2	Mrs. J.S. 55. Eur.	5 yrs.	Right	Bilateral	0	+	+	0	Slight wasting of APB	Not recorded	Negative	Yes (Right)	Excellent
3	Mrs. C.R.G. 40. Eur.	2 mths.	Right	Right	+	+	+	0	Slight weakness of OP	Not recorded	Positive 40 secs. III finger	Yes	Excellent
4	Mr. C.G. 50. Eur.	6 mths.	Right	Left	+	+	0	+	0	Positive 40 secs. III finger	Positive III finger	Yes	Excellent
5	Mrs. W.C. de W. 57. Eur.	3 yrs. 1 mth.	Right	Left Right (L>R)	+	+	+	+	0	Positive 45 secs. II & III fingers. 0	Positive Positive 40 secs. II & III fingers	Yes No	Excellent
6	Mrs. D. M. de W. 45. Eur.	4 mths.	Right	Right	+	0	0	+	0	Positive 50 secs. III finger	Positive III finger	Yes	Excellent
7	Mrs. H.A.T. 42. Eur.	6 mths.	Right	Bilateral	+	0	+	+	0	Not recorded	Not recorded	Yes (Left)	Excellent
8	Mrs. F.M. 52. Eur.	1 yr.	Right	Bilateral (L>R)	0	+	0	0	0	Positive 1 min. 20 secs. III finger.	Negative	Yes Yes	Excellent
9	Mrs. G.R. 44. Eur.	8 yrs.	Right	Right	+	+	+	0	0	Positive 40 secs. II & III fingers	Negative	Yes	Excellent
10	Miss J.R.R. 50. Eur.	3 mths.	Right	Bilateral (L>R)	+	+	0	0	0	Positive 50 secs. II, III & radial half IV finger	Negative	Yes Yes	Excellent
11	Mrs. T.D. 65. Col.	1 mth.	Right	Right	+	0	+	+	0	Positive 40 secs. III finger	Negative	Yes	Excellent
12	Mrs. M.L. 53. Col.	1 mth.	Right	Right	+	+	+	+	0	Positive 40 secs. III finger	Positive III finger	Yes	Excellent
13	Mrs. L.R.F. 55. Eur.	4 yrs.	Right	Bilateral	+	+	0	+	Wasting of APB R & L	Positive 40 secs. II & III fingers	Negative	Yes Yes	Excellent

Eur. = European. Col. = Coloured. + = present. 0 = absent. APB = abductor pollicis brevis. OP = opponens pollicis. R = right. L = Left. II, III, IV = Index, middle and ringfingers respectively.



Fig. 1. Incision for decompression of the median nerve.



Fig. 2. Median nerve exposed after division of the flexor retinaculum.



Fig. 3. Non-specific thickening of sheath surrounding flexor tendons.

had been present for 8 years; this patient was only partially relieved on the first post-operative night, but was completely symptom-free 24 days after the operation.

DISCUSSION

The carpal tunnel is a fibro-osseous canal formed by the natural concavity of the anterior aspect of the carpus (Fig. 4) and bounded by the broad, strong fibrous flexor retinaculum. The canal permits passage of the tendons of the flexor digitorum sublimis and profundus, the tendon of the flexor

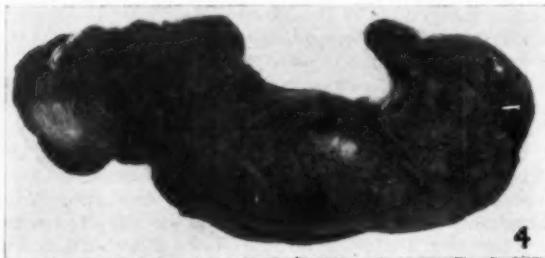


Fig. 4. Osseous boundaries of entrance to carpal tunnel.

pollicis longus, and the median nerve. These structures are firmly packed in the tunnel, separated from each other only by the tendon sheaths (Fig. 5), and proximally the median nerve lies between the border of the flexor retinaculum anteriorly and the radial bursa posteriorly.

The flexor retinaculum presents a number of features of practical importance, some of which have not been previously described. Proximally it is continuous with the deep fascia of the forearm, but on the ulnar side it also receives an expansion from the tendon of the flexor carpi ulnaris while, centrally, the deep aspect of the palmaris longus is attached

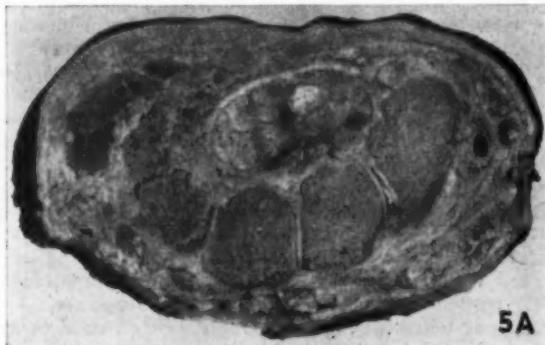


Fig. 5 (a). Section through the carpal tunnel to illustrate the extent of flexor retinaculum and the 'tight fit' of the structures passing through the carpal tunnel.

to it in a broad expansion. This fact is important because it means that in this region the median nerve is protected by a thick fibrous covering about 2 mm. thick, which has to be cut through at operation and which acts as a compressional 'bar' if the median nerve is pushed against it anteriorly by the swelling of the tendon sheaths behind. This might explain the narrowing of the nerve found at operation in the 5 instances recorded (Table I). Distally

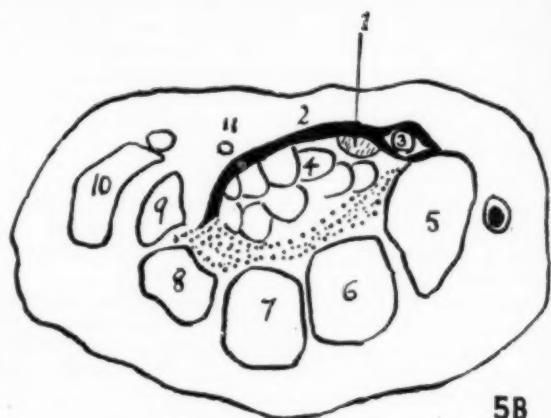


Fig. 5 (b). Line drawing of Fig. 5 (a). 1=median nerve. 2=flexor retinaculum. Stippled area indicates extensions of retinaculum blending with intercarpal ligaments and periosteum. 3=flexor carpi radialis. 4=flexor tendons. 5=carpal navicular. 6=capitate. 7=lunate. 8=triquetrum. 9=pisiform. 10=hypothenar muscles. 11=ulnar vessels and nerve.

the flexor retinaculum imperceptibly blends with the thick palmar aponeurosis. Although the retinaculum is attached to the bony pillars of the tunnel laterally (tuberous of scaphoid and trapezium) and medially (a ridge on pisiform and the hook of hamate), it provides a firm, fibrous and wide source of origin for the hypothenar and thenar muscles, and in these regions the retinaculum is again found to be thickened and expanded. This is observed particularly on the radial side, where a deep slip of the retinaculum not only is attached to the lip of the groove below the ridge of the trapezium, thus forming a small canal for the tendon of the flexor carpi radialis, but also blends with the intercarpal interosseous ligaments. Furthermore, from all these bony attachments and passing on the inside of the bony pillars are fibrous strands of the retinaculum which blend with the relatively thick interosseous and transverse carpal ligaments. Consequently, on section (Fig. 5) the contents of the carpal tunnel are seen to be bound together by a strong fibrous tube ('sheath') firmly attached and wedged against the concave bony walls on the sides and posteriorly. Because of its powerful attachments and because it actually is the most effective factor in maintaining the carpal bony concavity, the flexor retinaculum tends to form a relatively unyielding strap anteriorly.

Compression within the tunnel would easily occur if the contents increased in bulk or if the tunnel became narrowed. The structure most sensitive to pressure is the median nerve. Arthritic changes in the carpus or excessive callus after fractures or mal-union could cause narrowing of the tunnel. These features were not present in this series. Increased thickness of the flexor retinaculum would produce the same effect. The operative findings were suggestive of this in some instances, but the impressions were not verified by objective methods.

In every instance, however, the tendons were covered by an abnormally thick sheath of material, the nature of which is not known. If all the tendons were stripped the material

would be of an appreciable bulk, sufficient to have increased the tension within the tunnel considerably and thus affect the conductivity of the nerve, either directly by pressure or indirectly by producing ischaemia.

CONCLUSIONS

It is suggested that the peritendinous thickening is an important causative factor in producing this syndrome. The cause and nature of the thickening remains unknown. The occurrence in middle-aged women and the striking nocturnal severity of the symptoms remain unexplained.

SUMMARY

1. 13 patients with 19 carpal tunnel compressions are described.

2. 16 median nerves were decompressed, with immediate permanent relief of symptoms.

3. It is suggested that the abnormally thickened peritendinous tissue constantly found at operations is an important cause of increased pressure within the carpal tunnel.

4. The flexion test was found to be the most constant positive diagnostic test.

I have very much pleasure in recording my thanks to my brother, Mr. Alec Singer, for his encouragement and valuable criticism

and his kind permission to include cases 1, 2 and 9 in the series. I am most grateful to my brother, Dr. Ronald Singer, for the section on the anatomy of the carpal tunnel. My thanks are also due to Mr. B. V. Todt, who is responsible for the clinical photographs, and to Mr. G. McManus, who photographed the anatomical sections.

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ADDENDUM

Since the completion of this paper the two following cases have presented:

A European woman, aged 55 years, with symptoms of 3 years' duration in her right hand. An operation has been performed, with complete relief of symptoms.

A European woman aged 23 years, who developed a typical carpal-tunnel syndrome 5 weeks *after* parturition. An operation has been performed on both hands, with immediate relief of symptoms. This case is of interest because of her age (by far the youngest in the series) and because the condition manifested itself after the end of pregnancy.

A COMPARATIVE STUDY OF METHITURAL (NERAVAL*) AND THIOPENTONE

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In the 24 years which have passed since the first report of its clinical use in anaesthesia,¹ thiopentone has become firmly established as a most valuable drug for intravenous use. Although frequently misused, its virtues and its vices have become well known as a result of world-wide experience. A proper appreciation of its vices, in particular, has allowed thiopentone to be administered safely and satisfactorily to so many patients as to establish it as a standard drug for producing unconsciousness in intravenous anaesthesia.

The fact that the drug has vices has encouraged the search for a barbiturate which would prove superior to thiopentone in clinical use. One of the barbituric-acid derivatives with such a potential is the sodium salt of 5-(2¹-methylthioethyl)-5-(1-methyl butyl)-2-thiobarbituric acid ('Methitural': 'Neraval') and this report is concerned with our attempts to measure the usefulness of neraval, using thiopentone as a standard.

Neraval is one of the ultra-short-acting barbiturates. Its chemical structure is similar to that of thiopentone except that the 5-ethyl radical in thiopentone is replaced by a methylthioethyl radical. This latter is of interest on 2 counts: firstly it is the radical which occurs in methionine, the essential amino acid which plays a part in detoxification processes in the human body² and, secondly, this radical introduces a second sulphur atom into the barbiturate molecule.

On the first count it was hoped that the methylthioethyl radical would lead to quicker detoxification in the body

and thus to more rapid recovery from anaesthesia, although it is now generally recognized that the short duration of thiobarbiturate anaesthesia is dependent upon a relatively rapid redistribution of plasma thiobarbiturate into fat, whence it is slowly liberated.³

On the second count, it should be borne in mind that thiopentone differs from pentobarbitone (Nembutal) only by the addition of a sulphur atom on the 2 position in the barbituric-acid ring. Nembutal can be given by intramuscular injection but thiopentone cannot, because its markedly irritant properties lead to ulceration and abscess formation. It has been suggested that the sulphur atom, rather than the pH of the solution, is responsible for the irritant property of thiopentone. If this were so, it would be of interest to ascertain what action, if any, the second sulphur atom conferred upon the methitural molecule in this respect.

We attempted, by subcutaneous injection into rats and rabbits, and by intra-arterial injection into rabbits, to compare the irritant properties of thiopentone and methitural but our results were equivocal and are therefore not published.

Clinical Studies

In studying the clinical response to neraval and thiopentone the double blind technique was employed. Working under sterile conditions, the drugs were mixed and drawn into syringes which were marked in such a fashion that identification was only possible by the person responsible for the preparation of the solutions. This person did not administer any of the anaesthetics in which the drugs were used, and the several anaesthetists who did use the drugs were not able to identify the drug they were using, since

* The Neraval used in this study was made available by the generosity of Messrs. Scherag (Pty.) Ltd., Johannesburg.

the identifying marks were always being altered from day to day and in any event these anaesthetists were never told what drug they had used in any patient, even after the anaesthetic had been given. This method eliminates the unconscious bias which creeps into clinical studies carried out under less rigidly controlled conditions. The thiopentone was employed as a 2.5% solution (wt./volume) and the neraval as a 5.0% solution (wt./volume). A standard anaesthetic technique was employed for every anaesthetic and information was collected under more than 60 headings, and recorded as it was collected. When all the information had been collected, it was transferred to statistical cards and subjected to analysis. Only those cards which had been properly completed were used in the study. The results with thiopentone have been taken as the standard or control.

The patients were given the usual premedication favoured by the anaesthetist, who did not know that the patient was to be a subject for the test until he began his day's work.

After the needle had been inserted into a suitable vein, a test dose of 2 ml. of the unknown solution was administered and certain information, such as pain at the injection site or distal to the site, sleepiness, blood pressure, respiratory rate and pulse rate, was sought for and recorded. A further dose, judged by the patient's response to the first dose, was then given and anaesthesia continued with nitrous oxide (7 l./min.) and oxygen (2 l./min.) and further doses of the barbiturate. All doses, the times at which they were given, and their effects, were recorded, together with data relevant to the study, particularly blood pressure, pulse and respiratory rates. If it became necessary to supplement with any other drug (e.g. ether, muscle relaxant, etc.) this was recorded, and in fact such cases have not been included in this study.

and in fact such cases have not been included in this study. At the conclusion of the operation the patient was left entirely undisturbed for 5 minutes and spontaneous movement, opening of the eyes or efforts to speak, within this period, were noted. Thereafter the patient was returned to his or her bed and visited once more in the recovery period, if that was possible.

Results

The clinical study covered the administration of neraval to 111 patients and the administration of thiopentone to 77 patients. The records of 19 patients in each group were incomplete and these 38 were discarded. There were thus available for analysis the records of 92 administrations of neraval and 58 administrations of thiopentone. These records covered a wide variety of operations in both sexes and in all age-groups.

In order to reduce bias due to age, sex, weight and operation, records were selected for a group of 62 adult females aged between 20 and 40 years and weighing between 100 and 160 lb. All these patients were subjected to a common operation, namely dilatation of the uterine cervix and curettage of the uterine cavity. None of the anaesthetics lasted longer than 25 minutes and the anaesthetics were given by 13 anaesthetists at random over a period of 18 months. Of these 62 patients, 34 received neraval and 28 received thiopentone. They all received the proportions of nitrous oxide and oxygen as already described and, except for the usual pre-anaesthetic medication with a variety of drugs (always including either atropine or scopolamine) and sometimes the intravenous injection of ergometrine, they received no other drugs of any sort as adjuncts to the anaes-

TABLE I. RESULTS OF CLINICAL COMPARISONS

* Figures in brackets denote the standard deviation of the mean.

(a) Of these 7 patients, 4 had oral airway and 1 of these received

(b) Of these 7 patients, 1 had oral airway and topical anaesthesia to mouth.

(b) Of these 4 patients, 1 had oral airway.
 (c) This patient had oral airway and topical anaesthesia.

(d) The fall was in the range 10-20 mm Hg.

thetic. It will be seen from Table I that there is no statistical difference of any significance in the weights and in the duration of anaesthesia of the two groups. The complications during anaesthesia and during recovery suggest that detailed statistical study or more extensive clinical trials are not warranted.

The mean gravimetric dose of neraval is almost double that of thiopentone.

Neraval is reported to have half the anaesthetic potency of thiopentone in the rat and approximately two-thirds the anaesthetic activity of thiopentone in the cat, dog and monkey.⁴ However, such comparisons are usually made on a mg. per kg. of body-weight basis. If the drug molecule is intact when it exerts its effect upon a cell or cells within the body, it is reasonable to postulate that comparison should be made using equimolar solutions rather than solutions of gravimetric equality. Clark⁵ points out that although the weight of drug fixed per cell (in experiments measuring the action of cardiac glucosides, for example) is extremely small, yet the number of molecules fixed per cell is large. He quotes the number of phenol molecules required to kill a single yeast cell as being of the order of 3×10^6 molecules. It seems reasonable, therefore, to accept

that a drug with greater molecular weight (e.g. neraval) must of necessity be given in larger gravimetric doses than a similar drug of smaller molecular weight (e.g. thiopentone). Since the molecular weight of neraval is 17% greater than that of thiopentone, one could postulate that doses of neraval should be of the order of 17% greater than doses of thiopentone, if the drugs are equally potent in man. The marked greater gravimetric dosage suggests that neraval is less active than thiopentone in man as well as in experimental animals.

Requirements of Intravenous Anaesthetic Agent

Thiopentone is not an anaesthetic agent in the way that ether and chloroform are. These latter obtund pain to some degree before loss of consciousness, and reflex movements in response to painful stimuli disappear in light planes of unconsciousness. The converse is found when barbiturates are used as anaesthetic agents and for this reason they should always be supplemented with some other analgesic such as nitrous oxide. To displace thiopentone from its place in anaesthesia any drug must (a) possess anaesthetic properties approaching those of the true narcotics, (b) be cheaper than thiopentone, (c) be as easy to prepare and dispense and administer as thiopentone, and (d) have fewer side-effects and complications than thiopentone. In the light of the vast knowledge of the chemistry and pharma-

cology of the barbiturates which has been accumulated it seems unlikely that such a drug, if it exists, will be a barbituric-acid derivative. From the economic point of view it may be better to spend time and effort on refining the use of existing drugs rather than chasing what may be a chimera.

SUMMARY

A new barbiturate for intravenous anaesthesia, Neraval, has been compared with thiopentone in controlled experimental studies.

The results are inconclusive and do not suggest that neraval is in any way superior to thiopentone.

The requirements governing the development of new agents for intravenous anaesthesia are discussed.

We are indebted to Messrs. Scherag (Pty) Ltd., for supplies of Neraval which were used in this work.

This report is published with the permission of Dr. J. G. Burger, Medical Superintendent, Groote Schuur Hospital. Our colleagues in this Department all contributed materially to the work reported.

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ELECTROCARDIOGRAPHIC STUDIES. II

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Case 2. Complete Heart Block Showing the Chronotropic Effect of Ventricular Systole on Auricular Rhythm

This patient, a European male aged 75 years, became breathless on exertion 7 years before his hospital admission. At about the same time he had also started with pain in his chest which had all the characteristics of angina pectoris. These complaints had become progressively worse and for the past 10 months he was orthopnoeic and subject to attacks which had the nature of paroxysmal nocturnal dyspnoea. He had also developed congestive cardiac failure, for which he had been treated.

His present visit to this hospital was in connection with episodes of syncope which he had been experiencing over the past 5 months. These appeared suddenly, without warning, and occurred frequently. He lost consciousness for a very short period of time and on recovery was aware of a warm feeling and a red discolouration of his face. He had had no convulsions and there had been no injury or incontinence during any of these episodes. The remainder of his complaints were of a relatively minor nature.

On Examination

The patient was much over-weight (weight 210 lb.). He was breathless on very mild exertion and orthopnoeic. There was evidence of congestive cardiac failure with raised jugular venous pressure, an enlarged liver and mild oedema of the ankles. Crepitations were heard at both lung bases.

The pulses were palpable in both upper and lower extremities. The rate was 34 per minute and the pulse was collapsing in nature. The blood pressure was 160/80 mm. Hg.

The heart itself appeared to be clinically enlarged and the enlargement had a left ventricular quality. No valvular lesions were discoverable and there were no other findings of importance.

On biochemical and microscopical examination the urine appeared normal. A full blood count was within normal limits. ESR 5 mm. in the first hour (Westergren).

X-ray of the chest showed generalized enlargement of the heart,

with unfolding of the aorta and mild pulmonary congestion with emphysema.

ELECTROCARDIOGRAM

In the 12-lead ECG (Fig. 1) a right bundle-branch block pattern is evident. The cardiac rhythm as shown in a long strip from lead V_1 (Fig. 2) is seen to be a complete heart block with an auricular rate of 60 beats per minute and an idioventricular rate of 34 beats per minute. The appearance of ventricular ectopic beats can also be observed.

The idioventricular rhythm is completely regular, with the exception of the ectopic beats. The auricular rate is seen to vary and the noteworthy feature is that the P-P interval which includes a QRS complex is shorter than the P-P interval which does not include a QRS complex; the shorter P-P intervals measure 0.92 seconds and the longer P-P intervals 1.02 seconds. The appearance in general gives the impression that the P waves tend to group themselves around the QRS complex, and results in a superficial resemblance to a 2 : 1 heart block.

DISCUSSION

This patient is thought to have a degenerative heart condition with congestive cardiac failure and with complete auriculo-ventricular block and Stokes-Adams seizures.

The electrocardiogram confirms the presence of complete auriculo-ventricular block with a right bundle-branch block pattern. The main interest centres around the superficial resemblance to a 2 : 1 heart block on account of the grouping of P waves around QRS complexes, which results in a shorter P-P interval when this interval contains a QRS complex.

This tendency for auricular rhythm to be influenced by a ventricular systole is well known and the mechanism of its production has been extensively reviewed by Rosenbaum and

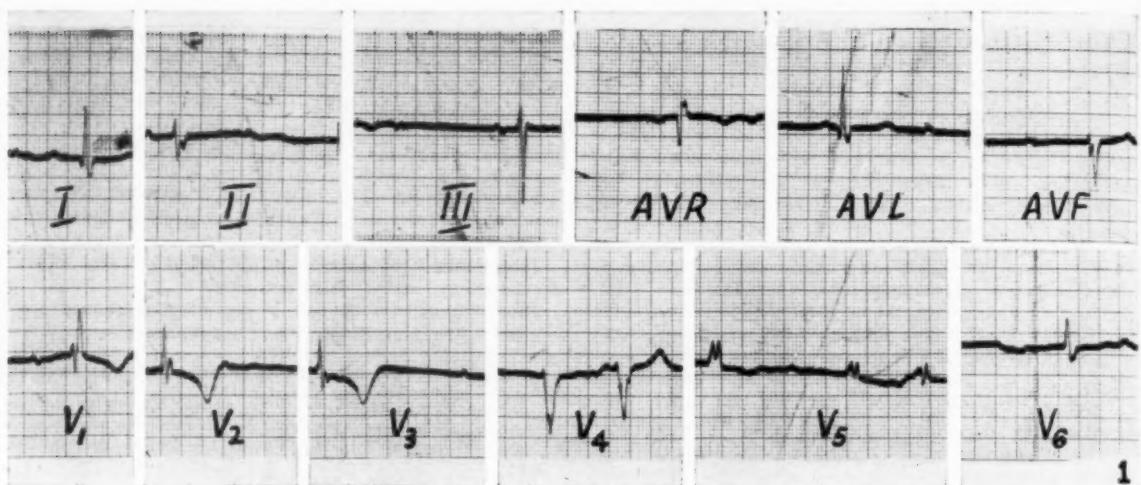


Fig. 1

Lepeschkin.¹ Each ventricular systole might have one of two distinct effects on the stimulus formation in the auricles. The first might be a positive chronotropic effect, which would tend to accelerate the stimulus formation and has a maximum influence on P waves appearing 0.3 – 0.4 of a second after the beginning of a ventricular QRS complex. This is thought to be due to one of a few possible mechanisms:

(a) The mechanical effect of ventricular systole, directly on the pacemaker of the sinus node, or through the effect on the sinus node of auricular pressure changes caused by ventricular systole.

(b) The direct effect of the electrical activity of the ventricles on the sinus node. Here the well-known electrical principle that two oscillating systems would tend to synchronize their rhythm is invoked to explain the tendency of idioventricular rhythm and the auricular rhythm to group themselves together.²

(c) Increased blood flow in the arteries of the sinus node during ventricular systole, resulting in a phasic blood supply to the pacemaker.

(d) Reflex changes have also been postulated.

The other possible effect of ventricular systole on the auricular rhythm is that of a late negative chronotropic effect which appears 0.6 – 1.0 second after the beginning of QRS and which would tend to delay the stimulus formation. This is very likely due to a reflex vagal stimulation caused by the arrival of a pulse wave at the arterial baro-receptor

areas, and may possibly be further influenced by an inhibition of the Bainbridge reflex by a decrease of the atrial pressure consequent on ventricular contraction.

In A-V block, P-P intervals containing a QRS complex are terminated by P waves which are usually affected by the positive chronotropic effect of the preceding ventricular systole, and are accordingly shorter than P-P intervals that do not contain QRS and are terminated by P waves appearing under the influence of negative chronotropic effects. This interaction tends to delay P waves which appear during the second half of diastole and to accelerate P-waves which appear during the first half of diastole. Consequently most P waves in complete auriculo-ventricular block, with pronounced chronotropic effects of ventricular systole, come either shortly before the QRS complex or soon after the T wave.

The chronotropic effect of ventricular systole on auricular rhythm in auriculo-ventricular block is present in less than half the reported instances of complete heart block. In 3.5% of the cases so reported a paradoxical effect is seen and P-P intervals containing QRS complexes may be longer than those not containing these complexes.

OPSUMMING

Die elektrokardiografiese beeld van volledige atrioventrikulêre blok en regter bondeltak-blok by 'n bejaarde pasiënt met ischemiese hartsiekte, word beskryf.

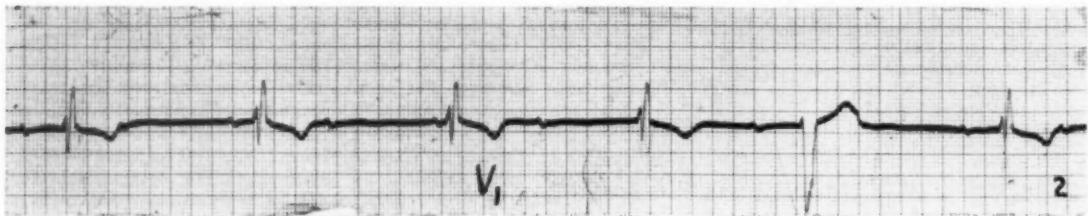


Fig. 2

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Die invloed van ventrikuläre sistolië op die stimulusvorming van die sino-atriële node word gedemonstreer sodat 'n groepering van P-uitwykings om die QRS-uitwykings plaasvind. In die geheel is daar 'n oppervlakkige voorkoms van 'n 2 : 1 hartblok. Daar word ook kortliks verwys na die

mechanismes waardeur ventrikuläre sistolië so 'n chronotropiese invloed op die atriële ritme uitoeft.

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OCCUPATIONAL HEALTH IN SOUTH AFRICAN INDUSTRY*

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During recent years, we have often been reminded¹ that, besides our mining industry, we have an established and expanding secondary industry supplying the essential needs of our community² and exporting to markets beyond its borders. 'With the steadily increasing competition on both the home and export markets, many industrialists will have to face for the first time the absolute necessity of limiting waste of all kind, including that of labour.'³

This item is the one with which we as medical men interested in industry are primarily concerned. The Chairman of Iscor has said, 'We must stop deluding ourselves with the popular claim that we have a vast store of cheap labour.'⁴ In a similar vein, Charles Bedaux, the management consultant, has stated, 'We all know that South Africa, compared with the rest of the world, has its special and quite acute problems of man-power, its lacks and its shortages.'⁵ Organized labour has recognized the need for conservation of our man-power resources. The late J. J. Venter, President of the Trades and Labour Council in 1953, actively cooperated with the City Council of Johannesburg in sponsoring the Conservation of Manpower Unit, concerned with the combating of alcoholism, which is eroding our man-power pool.⁶ It is obvious then that management and organized labour are interested in the conservation of man-power in common with the medical profession.

Industry has become a major employer of labour on whom the heterogeneous community of South Africa has become dependent; it can amply supply employment for the youth of all races without their resorting to emigration as they have had to do in many other countries.

What have we as medical men to do with the problem of the conservation of labour or man-power in industry? In answering this question, we must remember that the care and maintenance of the health of the individual (often referred to as personal health) is the business of the medical man in general practice, while environmental conditions in industry, together with the personal health of the employees, known as occupational health, is the concern of the medical man in industry. Today the doctor in industry must solve problems of a complex nature concerned with inter-human behaviour, among which priority is given to interrelations between management and labour which, if maintained in an industrial organization, facilitate communication and cooperation, resulting in such practical benefits as low sickness absenteeism and improved or increased production.⁷

The doctor in industry is in contact with workers all the time and becomes aware of their likes and dislikes in relation to management. With discrimination he can sort out the various facts, and can give definite indications of defects in managerial structure. The effects of these activities are far reaching; I. K. M. Scheepers, the Director of National Development Foundation of South Africa, aptly summed them up in the following dictum: 'The actions of the medical man in industry, his decisions and his responsibilities, are far-reaching and have management implication'.⁸

In addition to clinical examination and treatment, the medical man in his day-to-day relationship with his patients, is concerned with human relations in industry, and the doctor's diagnosis leads to the direction of the worker to his sick bed at home or in hospital for treatment and rehabilitation, or back to his normal occupation. These decisions are usually reflected in the medical certificate, which puts the medical man into the responsible position of arbiter between labour and management.⁹

This function of the doctor has a close bearing on management and in order to fulfil it efficiently the medical man needs an

economic status which will give him complete independence, and will enable him to afford the time needed for full investigation of his patients' problems as well as to keep abreast of advances in medicine. By his adequate investigation of his patients, together with his skilled observation of human behaviour under specific conditions, the doctor is able to supply a medical certificate which is a safeguard both to the worker and to management. These are economic measures of direct interest and importance to labour and management.

The medical man in industry can watch fluctuations in the sickness absence rate, and can help management in deciding to what degree it is real and what apparent; for an inflated sickness absence rate does not necessarily indicate a poor standard of medicine, but often points to some inherent weakness in labour-management relationship¹⁰ which could be adjusted. Correct certification may uncover occupational hazards which affect the health and the efficiency of the workers in a particular factory or industry. The statistics derived from such certification may localize faults in the occupational environment of the workers, and enable management to take effective preventive measures.

SICK BENEFIT FUNDS

The bulk of the European workers employed in mining, railways, municipal undertakings and secondary industry belong to various sick benefit funds or societies. The doctors on the panels of these organizations are giving yeoman service but, under present conditions, they are not able to cooperate with industry in the manner suggested by Scheepers's dictum.

The sick benefit organizations are supposed to cater for the lower income group of workers in whom nutritional standards are low and the incidence of sickness high, thus increasing the pressure on the already work-harassed doctor. The following are a few examples: 'A Commission of Inquiry into certain Sick Benefit Societies' (1952), instituted by the City Council of Johannesburg, found that medical men in these organizations were perforce examining patients at the average rate of one patient every 5 minutes. A large urban district surgery in the Transvaal manages to allocate an average of 3 minutes to each patient. These district surgeons supply medical treatment to certain civil service grades, paupers and state dependants as well as to sheltered employees. The senior District Surgeon in this instance aptly called this 'a token medical service'. Many of our colleagues connected with the S.A.R. & H. Sick Fund in the large urban areas work under similar pressure, which the recent annual report of the General Manager of Railways courageously confirms on the basis of sickness absentee rates. During the sittings of a Committee of Enquiry into the City Health Department (Johannesburg) (1952-1954) a medical witness, when asked how much time he was able to devote to the examination of the average patient, after some thought gave the answer as 45 seconds.

Such a situation leads to certification which bears no relation to the true clinical position, and in industry results in inflated sickness absenteeism. This, of course, is detrimental to industry which is trying to keep its head above water in a competitive field. It is costly because of the direct loss of man hours and of productivity and the general lowering of the level of efficiency. Over-all costs are raised, as jobs are maintained on overtime which, besides being costly, results in fatigue, with attendant increase in the accident rate. All this leads to increased cost of commodities and service,¹⁰ creating additional burdens on the public generally and the workers in particular.

Medical men on sick benefit society panels have often been accused of partisanship during periods of strained labour-management relations. Panel doctors have been accused of over-lenient or over-stringent certification according to whether labour or

* Paper read at the Conference on Industrial Ophthalmology, Johannesburg, November 1958.

management was in control of their sick benefit society. Such incidents destroy confidence in the doctor's decisions and certificates and nullify his position as an arbiter.

In the present climate of benefit society practice, management, perhaps unaware of the true position, is asking the medical profession to furnish a token health service, in effect subsidized by the panel doctors, who are unable through circumstances beyond their control to fulfil their function in the field of occupational health.

The evils of the capitation system produce economic hardship on the medical practitioners, who must of necessity compete for large panels in order to eke out a living.

The paucity of the present capitation fee paid to medical men is well illustrated by an advertisement which appeared in the *South African Medical Journal*. It reads: 'The remuneration for these (G.P.) services is 7s. per month in respect of members residing within the municipal area of Johannesburg, and 7s. 3d. per month in respect of families (note: families) outside the said municipal area'.

Astonishment is often expressed in industrial management not only at the low remuneration offered, but also that the medical profession with a tradition of service to the community allows the exploitation of its members, which of necessity must reflect in the nature of the service it renders and is not in the best interests of the community it serves.

These sick benefit organizations were of definite value in the early days of our industrial development, but today therapeutic medicine has made such strides that by reason of costs alone these organizations cannot cope with the demands made on their finances, so that they are forced to economize on their services, including specialist services, in order to give some semblance of therapeutic efficiency. No provision can be made for the practice of preventive medicine, which should include the time-consuming and therefore expensive periodic examination of workers.¹¹

Economic stringency usually determines the constitutions of these societies, resulting in the exclusion from treatment of various illness. For example, to this very day, the treatment of venereal diseases is usually excluded by the rule book, as is chronic alcoholism, a disease that is draining our man-power resources, while in many instances the old pensioner receives so called 'limited benefits' as his thanks for years of service in the industrial organization.

These sick benefit organizations have long existed by the grace of a benevolent medical profession. As industry has developed they have grown in number and in membership strength, and what was originally a matter of grace on the part of the medical profession, became a matter of current usage in industry. The control exercised by certain of these sick benefit organizations, over their panel doctors, many of whom have given long years of faithful service, has often threatened the doctor-patient relationship as well as human relations generally. These medical men in the main, have long become conditioned to a practice of medicine in which they function as mere scribes of certificates and prescriptions, and to which they cannot conscientiously subscribe.

This Conference, which is industrially biased, must ask what

practical steps can be taken to bring the practice of occupational health onto a satisfactory footing of real service to industry. The answer lies in making medical men in industry independent of control. This in effect means changing the present structure of the sick benefit society and bringing these bodies into line with the medical aid societies. Already there are 142 management-supported medical aid schemes operating in South African industry, where the worker has free choice of doctor and where the fees are regulated by a tariff which is arrived at by negotiation between management-labour and the Medical Association of South Africa.

Progressive labour has likewise entered the arena of the medical aid society. An example of such a labour-sponsored organization is the Printing Industry Medical Aid Society, which caters for members of the South African Typographical Union, and has the blessing and the support of its rank and file. It is obvious that labour is not insensitive to the needs of industry in this country.

The principle of payment by the job has long been recognized under the Workmen's Compensation Act. This Act is an example of what can be achieved in the interests of the injured workman, when the medical man is permitted to act freely in the interests of his patients.

It is most gratifying to those concerned with the development of occupational health in industry, that Dr. Maurice Shapiro, the Director of the South African Blood Transfusion Service, with his keen foresight has been able to persuade the Medical Association to accept the sponsorship of the Medical Services Plan. This Plan is to be controlled by the medical profession itself but will, in the not too distant future, render a complete medical service to those workers and other members of the public who participate in it. This again will be a further and progressive step in the fulfilment of the dictum of Scheepers in the field of occupational health.

Management must not merely maintain existing industrial levels, but must continue to make strenuous efforts to further the pace of industrial progress in South Africa. It should rally the support of those who are able actively to assist in this direction. It must now approach a medical profession which is willing to cooperate and assist in the furtherance of this national effort, but can only do so if the economic and the professional freedom of the medical man in industry is first fully assured.

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GEDAGTES OOR DIE GROEPSPRAKTYK*

BECK DE VILLIERS, M.B., Ch.B.

President, Tak Oranje-Vrystaat en Basoetoland, Mediese Vereniging van Suid-Afrika, 1958

Ek dink ons is almal bewus van hoe vinnig baie dinge in die wêreld vandag verander. In die mediese wêreld is die tempo van verandering en ontwikkeling, veral wat behandelung betref, baie groot. Daarom sal dit miskien goed wees om gedagtes te wissel oor die manier waarop ons onself in ons professionele hoedanigheid organiseer. Want, verandering in die wyse waarop ons georganiseer is, moet ook kom, en dit kan moontlik verbetering beteken. Die plan wat ek in gedagte het en wil bespreek hoeft geen afbreek aan ons standaarde te doen nie; intendeel, die plan behoort ons standaarde te verstewig en verbeter.

Daar is vandag 'n verbod op vennootskap tussen algemene praktyks en spesialiste. Daar is ook 'n verbod op sekere metodes

* Afskeidsrede van die President, Bloemfontein, 14 Februarie 1959.

van saamwerk tussen spesialiste en algemene praktyks. Ek dink nie dat die huidige indeling met sy verbiedings altyd tot voordeel van die pasiënt stek nie; ook nie dat hierdie indeling bydra tot die verhoging van ons standaarde van praktyk nie.

Ek sou sê dat daar in die beroefing van ons beroep 2 kernidees behoort te wees en ek stel hulle in die orde van belangrikheid: (1) Diens aan die pasiënt, en (2) die geneesheer se eie regte as mens.

DIENS AAN DIE PASIËNT

Die diens wat die geneesheer aan die pasiënt lewer, behels veral 3 elemente: (a) Vertroue tussen die pasiënt en die geneesheer, (b) die bedrewenheid van die geneesheer, en (c) die vraagstuk van die koste van so 'n diens.

Wedersydse Vertroue

Dit sal toegegee word dat die wedersydse vertroue tussen geneesheer en pasiënt, en die toegeneenthed tussen hulle, belangrike vereistes is by baie vorms van terapie. Niemand kan byvoorbeeld die plek van 'n vertroue huisdokter inneem nie. Die hedendaagse medisyne het egter, veral wat betref diagnose, behandeling en tegniese procedures, so geweldig ontwikkel dat daar die absolute noodsaklikheid van spesialisasie ontstaan het. Gevolglik is die dienste wat die huisdokter vir sy pasiënt kan en behoort te lewer, beperk. Hierdie laaste oorweging beteken egter nie dat die huisdokter nie nog 'n groot bydrae kan en moet maak nie.

Bedrewendheid van die Geneesheer

In die eerste plek moet die huisdokter die behoefte aan die dienste van die spesialis raakseien. Verder moet hy op grond van sy kennis van die hele agtergrond van die pasiënt bydra tot die besluit oor diagnose, behandeling en nasorg. Morele steun aan die pasiënt en sy gesin moet ook 'n onmisbare bydrae wees. Om hierdie ideale te bereik moet daar spanwerk wees in belang van die pasiënt tussen die algemene praktisyen en die spesialis, want die pasiënt is tog 'n mens en sy probleme vorm 'n geheel. Die mens kan nie as brokkies en stukkies benader word soos 'n motorkar nie. Die sieke en sy verwante is bekomerde mense. Deur hulle rond te slinger tussen dokters kan hulle verwarring en bekommernis net vergroot word. As hulle op die moeilike pad bygestaan word deur 'n bekwaame en vertroue huisdokter, kan dit egter vir hulle baie beteken. Die wyse spesialis is hiervan bewus en roep dikwels die huisdokter in in die belang van die sieke. Vir ons as dokters is 'n appendisektomie 'n geringe gebeurtenis; vir die pasiënt en sy gesin mag dit 'n berg wees.

Selfs met die beste spanwerk is daar vandag 2 stremmende faktore. In die eerste plaat is dit dikwels moeilik vir die huisdokter en spesialis om selfs tydelik saam te werk omdat die teenwoordigheid van die huisdokter as 'n oorlaas beskou mag word. In die tweede plaat verdwyn die huisdokter se geldelike belang in die pasiënt sodra die spesialis die geval oorneem. 'n Daagliks besoek aan die pasiënt in die hospitaal kan byvoorbeeld vir die huisdokter 'n last en 'n duur luukse word. Hierdie omstandighede sal verander as die huisdokter en spesialis vennote is en as hulle die belang vir gelewerde dienste sou deel. Die veronderstelling is natuurlik dat waar daar so 'n vennootskap is, die pasiënt die voordeel sal hê van die ideale samewerking tussen die dokter wat hy goed ken en die spesialis met sy groter bedrewendheid.

Koste van Mediese Dienste

Die derde aspek van 'n goeie diens aan die pasiënt moet nou nog genoem word, naamlik, die koste van die diens. Die goeie diens moet so wees dat die pasiënt dit kan bekostig. Die koste om gesond te word is egter vir baie mense vandag 'n ondraaglike las. Daarby kom die oorweging dat langdurige siekte verlies van verdienste meebring.

Sosoos by ander beroep is daar ook in ons eerbare professie geleenthede tot uitbuiting; daaroor praat ons nie hier nie. Wat ek egter wel wil doen is om ons goedgekeurde tariewe (wat na my mening versigtig hersiening nodig het) in oënskou te neem.

Soms word vir sekere dienste buite verhouding veel gevra. In alle beskeidheid en met eerbied vir die geskoolde dienste wat gelewer word, meen ek dat die gelde vir sekere chirurgiese procedures, byvoorbeeld, nie gebillik kan word nie. 'n Internis kan vir 'n uur of 'n uur en 'n half se werk £5 of £6 verdien, maar 'n chirurg kan £25 of £30 vir 'n appendisektomie ontvang. So 'n verskil kan ek nie ry nie, en hierdie vergelyking is nie onbillig nie. 'n Kollega het onlangs die siniese aanmerking teenoor my gemaak dat die dokter wat nie snywerk doen nie, 'n gek is. Ek voel al jare lank dat ons as 'n georganiseerde beroep die morele

plig het om ons hand in eie boesem te steek en om misstande van hierdie en dergelike aard te beëindig. Die hele kwessie van ons geldie as deel van die koste van gesondheid het 'n groot betrekking op die onderwerp wat ek nou bespreek.

Ons weet dat verdeling van geldie wel bestaan en ons weet dat kollegas, veral algemene praktisyens, chirurgiese behandeling aandurf—behandeling wat dikwels in die belang van die pasiënt liewers in die hande van 'n spesialis gelaat moes geword het. Ek beweer nie dat alle spesialiste cersteklas snywerk doen nie en ek weet ook dat baie algemene praktisyens goede snydokters is. Die beginsels wat egter aan die grond lê van spesialisasie is (1) spesiale opleiding en (2) gedurige oefening waardeur vaardigheid en vertroueheid in die hand gewerk word. Chirurgiese vaardigheid kan nie sonder gerekende oefening behou word nie. As die spesialis en die algemene praktisyn nou vennote is en hul geldie deel, sal daar geen botsing van geldelike belang wees nie, sodat die pasiënt se belang outomatis eerste gestel kan word. Daar sal ook 'n neiging wees om geldie wat of te hoog of te laag is, te verander tot billike bedrade. Samewerking van hierdie aard kan daar toe bydra om die ongesonde mededinging wat wel dikwels onder die huidige bedeling tussen algemene praktisyens en spesialiste voorkom, uit die weg te ruim.

Konsultasie met 'n spesialis hoef ook nie altyd die vorm van 'n lang formele proses aan te neem nie. As dit 'n sonde is, is ek een van die skuldiges wat soms 5 of 10 minute lank raad bedel by spesialiste. Ons organisasie maak egter nie voorsiening vir hierdie soort konsultasie nie—behalwe op die basis van wat ons wel as bedel moet beskryf.

Daar is dikwels onnodige oorvleueling tussen die ondersoek van die algemene praktisyen en die spesialis veral wat betref die agtergrond van die siekte. Sulke oorvleueling lei tot vermorsing van die tyd van algemene praktisyens sowel as van spesialiste, en tot onnodige verhoging van die geldie wat die pasiënt uiteindelik moet betaal. As die algemene praktisyn en die spesialis as 'n span saamwerk, sal die praktisyn moontlik ook deeglike werk lewer omdat hy nie sal voel dat sommige ondersoek maar verwaarloos kan word omdat die spesialis hulle tog moet uitvoer nie.

DIE REGTE VAN DIE GENEESHEER

By die besprekking van die regte van die geneesheer sou ek graag die stelling wou maak dat elkeen van ons die volgende verlang: (1) genoeg werk, (2) billike vergoeding vir die werk om te voorsien in ons eie behoeftes—en by ons eie behoeftes sou ek insluit die moontlikheid om periodiek ons kennis op te knap en om genoeg te hê vir ons oudag, en (3) genoeg vrye tyd, waarby ek insluit vakansies, tyd vir ontspanning en tyd om deel te neem aan die lewe van die gemeenskap.

Genoeg werk is 'n relatiewe begrip. In ons beroep is dit egter so die geval dat enige tyd wat ons aan onself bestee, inbreuk maak op ons beskikbaarheid vir ons pasiënte en gevoglik ook op ons verdienste. Dit is goed as 'n mens se werk die eerste plek in sy lewe inneem, maar as dit sy enigste belang word, hou hy op om 'n volwaardige mens te wees. Vandat ek tot die mediese beroep toetree het, het ek gevind dat ek nooddwendige deelname aan verenigingswerk moes uitskakel.

Voordele van die Groepspraktyk

Laat ons nou probeer nagaan watter voordele die groepspraktyk vir ons inhoud. Veronderstel dat die groep bestaan uit 4 algemene praktisyens, 1 internis, 1 kinderarts, 1 ginekoloog en 1 chirurg. Onder hierdie omstandighede sou die meeste huisbesoekers deur die algemene praktisyens gedoen word en die konsultasies by die spreekkamers sal ook in die eerste plek deur hulle onderneem word. Hulle sal dan een of meer van die spesialiste raadpleeg oor elke geval waar twyfel bestaan. Indien meer tyd nodig is vir spesiale besoek deur 'n spesialis, sal reëlings daarvoor getref word op die basis van behoorlike organisasie sodat die pasiënt die volle voordeel kan kry van behoorlike spanwerk. Soos ons vandag praktiseer, selfs waar dokters in dieselfde gebou is, ontbreek die element van vennootskap wat werklike spanwerk bevoorde.

Sulke samewerking kan vir die betrokke dokters self besonder baie beteken. Gedurige samewerking en samesprekking kan be teken dat elke lid van die groep sy beste werk sal lewer. Isolasië, wat die herhaling van foute en die veroudering van gebruikte en metodes meebring, sal verdwyn. Elkeen sal leer van elke ander en met wie hy saamwerk. Daar sal 'n gedurige prikkeling van belangstelling wees en selfs die eenvoudigste probleem sal 'n



Dr. Beck de Villiers

nuwe aanskyn kry as 2 of meer kollegas dit bespreek. Periodieke byeenkomste van die groep kan baie bydra tot voortdurende opvoeding en opknapping binne die groep. Onder die toesig van die meer ervare lede kan die minder ervare lede van die groep geskoold raak in die uitvoer van procedures, ens. Hierin lê groot moontlikhede—ook vir spesialisasie. Dit volg vanself dat die groep net kollegas in die groep sal wil hê wat 'n aanwens is. Hoe 'n beter dokter elke lid van die groep is, hoe meer sal dit sy mede-lede en homself op alle maniere bevoordeel. Binne die groep kan maklik gereel word vir die gebruik van vrye tyd. Daar kan plek gemaak word vir die jonge en die oue. Die kwessie van tug-maatreëls tussen lede wat die reëls oortree, word vereenvoudig as gevolg van die gevoel van samehorighed van die groep. En die verdienste van elke lid van die groep kan deur die groep self gereel word.

Geen spesialis sal vandag maklik sy naam van die register af laat verwyder om weer algemene praktisyen te word nie want dit sal te veel van 'n geldelike waagstuk wees. As die

Mediese Raad egter in gevalle waar aansoek gedaan word, vennootskappe soos ek voorstel, sou toelaat, sou die eksperiment nie net interessant wees nie, maar dit mag tot 'n hele nuwe bedeling vir dokters en pasiënte lei.

Die gedagtes wat ek hier uitgespreek het, is nie almal oorspronklik my eie nie. Dr. Schaffer het reeds al verlede jaar sommige aspekte van die probleem aangeraak in sy presidentsrede! toe hy ingelyf is as President van die Mediese Vereniging.

Die tasting na 'n nuwe bedeling word gedurig weerspieël in die besprekings van kollegas, die botsinge tussen kollegas, en die strewie na nagraadse studie vir algemene praktisyens. Ek verwag nie dat al my kollegas moet saamstem met wat ek gesê het nie—dit sou voorbaard wees. Ek sal egter dankbaar wees as die moontlikhede van 'n nuwe bedeling nie sonder meer verwerp sal word nie en as my rede as prikkel kan dien tot verdere gedagtes oor hierdie saak.

VERWYSING

1. Schaffer, R. (1958): S. Afr. T. Geneesk., 32, 973.

DISCOUNT ON PHARMACEUTICAL PRODUCTS

As a result of enquiries made by certain members of the Association in regard to the proposed reduction in the discount allowed to medical practitioners by pharmaceutical houses the whole matter was referred to the Assistant Secretary (Transvaal) of the Medical Association for investigation.

In reply to the enquiry made by the Assistant Secretary a letter dated 3 February 1959 was received from Mr. G. J. v. N. Fourie, Secretary of the Council for the Pharmaceutical Trade and Industry. This letter is reproduced below for the information of members of the Association, who may be concerned about the possible reduction in discount:

"With reference to your enquiry in regard to the discount allowed to medical practitioners on pharmaceutical products, I confirm that the Council for the Pharmaceutical Trade and Industry has completely abandoned its intention, which was embodied in a resolution adopted during 1957, to allow medical practitioners no more than a nominal discount of 10% off the retail price of any pharmaceutical commodity.

A medical practitioner will be allowed the discount of 20% on retail purchases, and will be able to avail himself of this dis-

count even when buying from retail chemists. On all purchases in quantities larger than "retail" quantities the discount will be 33 1/3%.

"Purchases in quantities larger than retail quantities (i.e. in "bulk" quantity) will, therefore, be subject to an increased discount compared with the discount normally allowed in price lists. A "bulk" quantity has been defined as follows:

"Where there is more than one size of any strength of a product then 'one only' of the largest pack listed is a 'bulk quantity' and an amount of six units of any other one size is also a 'bulk quantity'. Where there is only one size offered in the price list, then six only of this pack constitute a 'bulk quantity'. Any order which does not qualify for a 'bulk quantity' as defined above must be regarded as a 'retail quantity' and a discount of 20% allowed."

"As you will observe from the foregoing, medical practitioners will enjoy an advantage of 20% even on sporadic small-scale purchases from any wholesale or retail outlet, while the medical practitioner who is in business as a dispenser, is being allowed the same discount as the retail chemist and druggist."

PASSING EVENTS : IN DIE VERBYGAAN

Dr. Arthur Landau, M.B., Ch.B., M.R.C.P., has been elected to the Fellowship of the Royal College of Physicians of London. Dr. Landau is President of the Cape Western Branch (M.A.S.A.) and a member of the Federal Council of the Association; he is also senior lecturer in medicine at the University of Cape Town and senior physician to the teaching unit of the Somerset Hospital, Cape Town.

* * *

Research Forum, University of Cape Town. A meeting of Research Forum will be held on Tuesday 19 May at 12 noon in the large A-floor Lecture Theatre, Groote Schuur Hospital, Observatory, Cape. Dr. P. M. Smythe and Dr. J. A. H. Campbell will speak on "The possible disturbance of the immune mechanism and the intestinal mucous membrane in the genesis of the bacteraemia of kwashiorkor". All interested are invited to attend this meeting.

* * *

South African Paediatric Association. Dr. K. Bobath, the well-known neurologist and authority on cerebral palsy, will address a meeting held under the auspices of the Cape Town Sub-group of this Association on Tuesday 19 May in the Lecture Theatre, Red Cross War Memorial Children's Hospital, Rondebosch, Cape, at 8.15 p.m., to which all practitioners are cordially invited. The subject of Dr. Bobath's address will be "The early diagnosis of cerebral palsy". This meeting will take the place of the usual June meeting of this Sub-group.

* * *

South African Institute for Medical Research, Johannesburg, Staff Scientific Meetings. A meeting will be held on 25 May 1959 at 5.10 p.m. in the Institute Lecture Theatre when Dr. H. E. A.

Menz will speak on "Porphyrin metabolism in the Bantu". A further meeting will be held on 8 June 1959 at 5.10 p.m. in the Institute Lecture Theatre when Prof. H. B. Stein will talk on his recent visit to the UK and the USA. Visitors will be welcome at both meetings.

* * *

Mr. J. E. Gasson, D.S.O., D.F.C., M.B., Ch.B. (Cape Town), F.R.C.S. (Eng.), formerly Senior Surgical Registrar, Royal Cancer Hospital, London, and Groote Schuur Hospital, Cape Town, is now in practice as a specialist surgeon at 911 Medical Centre, Heerengracht, Cape Town. Telephones: Rooms 3-5259, residence 77-0208.

Dr. J. E. Gasson, D.S.O., D.F.C., M.B., Ch.B. (Kaapstad), F.R.C.S. (Eng.), voorheen Senior Chirurgiese Registrateur, Royal Cancer-Hospitaal, Londen, en Groote Schuur-Hospitaal, Kaapstad, praktiseer nou as spesialis-chirurg te Mediese Sentrum 911, Heerengracht, Kaapstad. Telefone: Spreekkamer 3-5259, woning 77-0208.

* * *

National Association for Maternal and Child Welfare (UK). The annual conference of this Association will be held at Church House, Westminster, London, S.W.1, on 21-23 July 1959. The main themes of the conference will be "The effects of maternal and child welfare work on problems of population", "Routine school medical inspection—an evaluation", "The basic principles of health education", and "The report of the Maternity Services Committee". Social events and visits to places of scientific interest are being arranged. The appointment of delegates is invited; tickets, price £2 12s. 6d., to include 1 copy of the report of the

conference, may be obtained from the Secretary, National Association for Maternal and Child Welfare, Tavistock House North, Tavistock Square, London, W.C. 1.

* * *

South African National Tuberculosis Association. A record total of 1,349 beds for tuberculous patients have been erected by SANTA during the financial year ended 31 March 1959. This brings the Association's total to 5,440 beds established since 1952 in 28 Treatment Centres which function as austerity hospitals. 1,070 of the new record total of 1,349 beds are in new fully equipped SANTA Centres at Van Rhynsdorp, Standerton, Port Alfred,

Graaff-Reinet, Bochum and Baragwanath. The remaining 279 beds have been established as additions and extensions to existing SANTA Centres at Barberton, Port Elizabeth, George, Stellenbosch/Somerset West, Springbok and Westlake. SANTA's capital expenditure on these projects was in the neighbourhood of £170,000. Based on the formula laid down by the Government the Association can only claim £144,699 of this expenditure as a grant-in-aid. £100,000—the maximum allocated to SANTA for this type of work in any one year—has already been received and the balance will be carried forward into the next financial year.

NEW PREPARATIONS AND APPLIANCES : NUWE PREPARATE EN TOESTELLE

GELUSIL LIQUID

Warner Pharmaceuticals (Pty.) Ltd. announce the introduction of Gelusil Liquid and supply the following information:

Gelusil Liquid is a new addition to the Gelusil range. It combines the advantages of 2 non-systemic antacids, non-reactive aluminium hydroxide gel and magnesium trisilicate.

Composition. The composition of Gelusil Liquid is magnesium trisilicate 0.49 g. (7.50 gr.), aluminium hydroxide 0.26 g. (4.00 gr.) and calcium phosphate (traces).

Action. It reduces gastric acidity without causing acid rebound. Since Gelusil Liquid does not neutralize acid, but buffers, the possibility of systemic alkalosis is eliminated. Gelusil Liquid is not constipating owing to the low order of chemical reactivity of its aluminium hydroxide component. It tends to form a minimum of astringent and constipating aluminium chloride.

Indications. Gelusil Liquid is indicated for the treatment of hyperacidity, peptic ulcer and heartburn of pregnancy.

Dosage. 1 or 2 teaspoonfuls as needed.

Gelusil Liquid is supplied in bottles of 6 and 12 fluid ounces.

OSMAN BLANKETS

Barlow and Jones Ltd. introduce the Osman cellular blanket, and supply the following information:

The Osman cellular blanket is made of the finest quality cotton and can be boiled to remove pathogenic organisms. The blanket does not fluff or become hard after frequent laundering.

Cotton, unlike some materials, does not generate static electricity or give off sparks, so that Osman blankets are completely

safe to use near anaesthetic or explosive gases in operating theatres.

Hospitals which use Osman cellular blankets find their light weight particularly useful with arthritic and surgical cases, where heavier blankets cause discomfort.

Further information may be obtained from the agents: E. W. Dunckley and Son (Pty.) Ltd., P.O. Box 2902, Johannesburg; P.O. Box 2458, Durban; P.O. Box 415, Cape Town; and P.O. Box 1239, Bulawayo, S.R.

PLANIDETS

Maybaker (S.A.) (Pty.) Ltd. announce the introduction of Planidets brand antiseptic/analgesic lozenges and supply the following information: These lozenges contain two potent antibacterial and antifungal compounds and a local analgesic.

The local analgesic effect of Planidets makes them particularly useful in relieving the discomfort of a sore throat and in soothing irritated tissues. They are useful also as adjuvant therapy in alleviating irritation in tonsillitis, streptococcal sore throat and Vincent's infection.

Planidets may be used both prophylactically and curatively. Taken after the extraction of teeth, Planidets minimize the possibility of septic complications.

Planidets lozenges are indicated for the relief of painful conditions of the mouth and throat and as an aid in the treatment of throat and mouth infections due to susceptible organisms.

Each Planidet lozenge contains: dibromopropamide embonate 1 mg., chlorphenoctic amsonate 1 mg. and butylaminobenzoate 4 mg. Planidets are supplied in tubes of 12 tablets.

BOOK REVIEWS : BOEKBESPREKINGS

PERIPHERAL CIRCULATION

Begutachtung Peripherer Durchblutungsstörungen. Von Prof. Dr. H. W. Pässler und Dr. H. Berghausen. xii+272 Seiten, 68 Abbildungen in 147 Einzeldarstellungen. DM 45.00. Stuttgart: Georg Thieme Verlag, 1958.

Pässler has very good experience in disturbances of the peripheral circulation. This book is based on about 500 judgments. The authors describe their methods and make general remarks about the pathogenesis of chronic obliterating diseases of the blood vessels. Then they add judgments about causative correlations between disturbances of the peripheral circulation and trauma, frost-bites, infections and poisonings. It is, of course, somewhat difficult to find details in a book like this, containing more than 100 judgments, but the details are mentioned and a good subject register helps to find them. The judgments are very critical and are selected so that the whole group of diseases appears to be covered.

H.W.W.

OPHTHALMIC PLASTIC SURGERY

Ophthalmic Plastic Surgery. 2nd revised edition. By Sidney A. Fox, M.S. (Ophth.), M.D., F.A.C.S. Pp. xii+324. 149 figures. \$15.00. New York and London: Grune & Stratton, Inc. 1958.

This book, published by Grune & Stratton, is well produced on art paper. The printing is good and the drawings are clear,

but the photographs are not. Confusion as to the results of treatment is increased by the fact that 'before' and 'after' pictures are more often than not taken at different angles with different lighting, and not infrequently an artificial eye would appear in one photograph and not in the other.

The book has been written by an ophthalmic surgeon and not a plastic surgeon. Dermatomes are used for very small free grafts for inadequate reasons except, perhaps, lack of practice in free-hand cutting, and some of the methods lack a sense of aesthetic knowledge. For example, the upper lid should always overhang the lower at the external canthus and any tarsorrhaphy necessary at the external canthus should guarantee this condition. The various tarsorrhaphies mentioned are all in the reverse position (Fuchs, Elschning, Goldstein). The lateral-overlap tarsorrhaphy which gives the most natural appearance is not mentioned. Moreover, the author states that in paralytic ectropia permanent tarsorrhaphy is indefensible. Most plastic surgeons believe that this is the primary indication for permanent tarsorrhaphy and, indeed, may save the eye. The chapters on skin grafting are not sufficiently advanced to be placed in a book published in 1958, although they may have been adequate in 1928. Socket repair work and lid repair leave much to be desired. Very few of the better methods have been mentioned. The transfer of hair to create eyelashes is astonishingly frank in its failure to impress.

Surgery involving the lid margins, however, is well described and plastic surgeons would be well advised to purchase this book for this section. There is a good description of the lid-splitting technique and the 'halving' procedure in closing the lid, in which

the virtue of adjusting the conjunctiva and skin at different levels is well brought out. The benefits of canthotomy and cantholysis are also well illustrated.

Massive problems of tumour or trauma are not dealt with in this book nor is any mention made of the use of prosthetics. It would be wise to bring the third edition of the book up to date in this and other respects.

J.P.

TUBERCULOSIS IN CHILDREN

Aktuelle Probleme der Kindertuberkulose. Von Prof. Dr. H. Wissler. viii+71 Seiten. 17 Abbildungen. DM 12.80. Stuttgart: Georg Thieme Verlag. 1958.

A considerable part of the 1st chapter of this book is devoted to a discussion of the important facts concerning the bacteriology of the tubercle bacillus and the methods of culture. The various drugs employed in the treatment of tuberculosis are discussed. Special emphasis is laid on INH, streptomycin, PAS, BCG vaccine and the corticosteroids.

Subsequent chapters reveal more facts about some important aspects of the epidemiology of tuberculosis with special reference to the different age-groups. In a series comprising many thousands of cases, it was found that 50% of the patients at the age of 19 years presented with a positive Mantoux reaction.

In the 1944-46 series reported here 39% of the cases presented with cavernous lung tuberculosis and 43% with joint infection, and in the 1954-56 series 6% of the cases presented with cavernous lung tuberculosis and only 13% with joint infection.

Proper treatment of tuberculosis is very strongly advocated. It was found that tuberculosis meningitis has diminished remarkably since the introduction of INH, especially, when administered in conjunction with PAS and streptomycin. The same applies to miliary tuberculosis.

The author is also a very strong advocate of BCG vaccination. He records 0.1% infections in 21,000 vaccinated persons as compared with 1.97% in 28,000 non-vaccinated; and also 3.3% infections in 627 vaccinated and in open contact as compared with 45.1% in 563 non-vaccinated and in open contact.

He also records the observation that cortisone and ACTH have a definite place in the treatment of tuberculosis although it was found that when administered in large doses they tend to have a detrimental effect.

D.J.H.

A MANUAL OF ANAESTHETIC TECHNIQUES

A Manual of Anaesthetic Techniques. 2nd edition. By William J. Pryor, M.B., Ch.B. (N.Z.), F.F.A.R.C.S. (Eng.), D.A. (Eng.), F.F.A.R.C.S. Pp. 228. 75 illustrations. 27s. 6d. + 1s. Id. postage. Bristol: John Wright & Sons Ltd. 1959.

In the preface to the 1st edition the author states this book was produced as a vade-mecum for house surgeons and registrars commencing the practice of anaesthesia. In this purpose he has, for the most part, admirably succeeded. The usual techniques of inhalational and intravenous anaesthesia have been described. In each section the author gives his method of choice, followed by an alternative, but not necessarily second-best, choice.

The techniques of local analgesia, however, receive poor treatment. Spinal analgesia rates only 4 pages. Epidural blocks (to quote) 'in general are not recommended'. This is a surprising omission in a text dealing primarily with techniques.

Lest the reader be discouraged by these few omissions, let the reviewer hasten to assure him that the field of everyday anaesthesia, with its various pitfalls and difficulties, is well covered. This text can, therefore, be confidently recommended to the tyro anaesthetist and even, perhaps, to his elder colleague. P.J.

CORRESPONDENCE : BRIEWERUBRIEK

DISTRIKSGENEESHEERSKAPPE

Aan die Redakteur: In die Tydskrif van 25 April lewer die Eresekretaris van die Vereniging van Distriksgeneesheere¹ kommentaar oor my brief insake algemene besoldiging van deeltydse distriksgeneesheere.

Dit is teleurstellend dat dr. Troskie dit nodig geag het om die volgende te sê: 'Ten slotte het ons nie die reg om te kla omdat kla, kla is nie. As ons kla moet ons klagtes op feite berus'.

My brief het op 'n paar feite gewys waaruit ek die gevolgtrekking maak dat die algemene besoldiging van die deeltydse distriksgeneesheer in 'n mate uitbuiting is.

Never again

30 April 1959

1. Briererubriek (1959): S. Afr. T. Genesk., 33, 264.

OPEN PANEL OR CLOSED PANEL

To the Editor: I wonder how Mr. W. M. C. Davidson¹ would view the following situation:

I was called in to a large house where a mother and 4 children were suffering from severe influenza. I charged a visiting fee of 1 guinea for the mother on each of 5 visits and only half the fee for 2 of the children each time I visited them, i.e. A and B on the first day, C and D on the second day and so on for 5 days, a total of 10 guineas.

On rendering my account I received a letter from the father's private secretary to the effect that he was a member of the firm's medical aid society and would I please fill in the enclosed forms, I for each member of the family. At medical aid rates I could then have charged £3 15s. 0d. for the mother and 20 times 6s. 3d. for the children, but as I had only specified 10 children's visits on my original account, I could only charge £3 2s. 6d.—total of £6 17s. 6d. in all.

A few weeks later there was a picture in the local paper of the whole family departing for a 6-months overseas holiday.

If I went to the firm of which the father was managing director and asked for a supply of soap, or a set of tyres, or even a motor car, at a discount of 34%, I wonder what the reply would be?

28 April 1959

1. Correspondence (1959): S. Afr. Med. J., 33, 368.

Stung

Albert Einstein College of Medicine

Yeshiva University
Eastchester Road and Morris Park Avenue
New York 61, N.Y.

30 April 1959

Robert H. Goetz

1. Editorial (1959): S. Afr. Med. J., 33, 245.

2. Goetz, R. H. and Marr, J. A. S. (1944): Clin. Proc., 3, 102.

3. *Idem* ed. Reese, H. R. (1944): *The Year Book of Neurology*, p. 246. Chicago: Year Book Publishers.

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